

Claims

WHAT IS CLAIMED IS:

A method for communicating link connection type characteristics in a network, comprising:

- 5 determining connection type characteristics for a link within the network;
advertising the connection type characteristics to at least one node in the network;
and
utilizing, by the at least one node, the connection type characteristics for
performing a network function.

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2. The method of claim 1, wherein utilizing further comprises selecting, by the at least one node, a routing path within the network for a connection based on the connection type characteristics.

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3. The method of claim 2 further comprises:
detecting a change in the link, wherein the change produces altered connection type characteristics; and
advertising the altered connection type characteristics.

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4. The method of claim 3, wherein the step of determining the connection type characteristics is performed by a localized node coupled to the link.

5. The method of claim 3, wherein advertising further comprises broadcasting the connection type characteristics to neighboring nodes in the network.

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6. The method of claim 3, wherein advertising further comprises broadcasting the connection type characteristics to each node within the network.

7. The method of claim 3 further comprises compiling connection type

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characteristics for a plurality of links within the network to produce a characteristic data

set, wherein selecting the routing path further comprises selecting the routing path using the characteristic data set.

8. The method of claim 7 wherein selecting the routing path further comprises
5 comparing characteristics of a connection request with the characteristic data set, wherein the routing path is provided in response to the connection request.

9. The method of claim 8 wherein compiling further comprises compiling the
10 connection type characteristics for the plurality of links with additional network characteristics to produce the characteristic data set.

10. The method of claim 3, wherein the connection type characteristics include
15 information indicating likelihood of establishing the connection using the link, wherein the connection has a connection type.

11. The method of claim 10 wherein the connection type of the connection is one of a
plurality of connection types, wherein the plurality of connection types includes a
plurality of priority levels that determine prioritization of connections.

20 12. The method of claim 10 wherein the connection type of the connection is one of a plurality of connection types, wherein the plurality of connection types includes switched virtual connections and soft permanent virtual connections.

25 13. The method of claim 10 wherein the connection type of the connection is one of a plurality of connection types, wherein the plurality of connection types includes a plurality of user connection types, wherein bandwidth on the link is partitioned between different user connection types.

30 14. The method of claim 3 further comprises sending a call setup sequence to establish the connection along the routing path.

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A method establishing a connection in a communications network, comprising:
receiving a connection request that includes a plurality of parameters, wherein the
plurality of parameters includes a receiving party, and a connection type characteristic;
comparing the plurality of parameters with a table that stores network parameters
to produce a first routing path to the receiving party, wherein the network parameters
include links within the network and corresponding connection type characteristic
capabilities for the links; and
establishing the connection along the first routing path.

16. The method of claim 15 further comprises:
when establishing the connection along the first routing path is unsuccessful:
comparing the plurality of parameters with the table that stores network
parameters to produce a second routing path to the receiving party; and
establishing the connection along the second routing path.

17. The method of claim 15 further comprises:
when establishing the connection along the first routing path is unsuccessful:
comparing the plurality of parameters with the table that stores network
parameters to produce at least a second routing path to the receiving party, wherein the
second routing path and any additional routing paths are produced through further
comparisons for subsequent rerouting attempts when connections using attempted routing
paths are unsuccessful.

18. The method of claim 15, wherein connection type characteristics distinguish
between switched virtual connections and soft permanent virtual connections, wherein the
connection type characteristic capabilities for the links in the network indicate bandwidth
allocation over each link for switched virtual connections and soft permanent virtual
connections.

19. The method of claim 15, wherein connection type characteristics describe partitioning of the bandwidth across the link between different connection types.

20. The method of claim 19, wherein the different connection types to which
5 bandwidth across the link is partitioned include a plurality of priority level connection types.

21. The method of claim 19, wherein the different connection types to which
bandwidth across the link is partitioned include a plurality of user connection types.
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22. The method of claim 15, wherein establishing the connection along the first routing path further comprises sending a designated transit list to each node along the first routing path.

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A link characteristic processor comprises:
a processing module; and
memory operably coupled to the processing module, wherein the memory
includes operating instruction that cause the processing module to:

- 5 determine connection type characteristics for a link within the network;
 advertise the connection type characteristics to at least one node in the
network, wherein the node utilizes the connection type characteristics for selecting a
routing path within the network for a connection.

- 10 24. The link characteristic processor of claim 23 further comprises operating
instructions that cause the processing module to:
 detect a change in the link, wherein the change produces altered connection type
characteristics; and
 advertise the altered connection type characteristics.

- 15 25. The link characteristic processor of claim 24, wherein the processing module is
included in a localized node coupled to the link.

- 20 26. The link characteristic processor of claim 24 further comprises operating
instructions that cause the processing module to:
 advertise the altered connection type characteristics by broadcasting the
connection type characteristics to neighboring nodes in the network.

- 25 27. The link characteristic processor of claim 24 further comprises operating
instructions that cause the processing module to:
 advertise the altered connection type characteristics by broadcasting the
connection type characteristics to all nodes in the network.

28. The link characteristic processor of claim 24, wherein the connection type characteristics for the link include an amount of bandwidth available for switched virtual connections and soft permanent virtual connections.

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A connection processor comprises:

a processing module; and

memory operably coupled to the processing module, wherein the memory

5 includes operating instruction that cause the processing module to:

receive a connection request that includes a plurality of parameters,
wherein the plurality of parameters includes a receiving party and a connection
type characteristic;

10 compare the plurality of parameters with a table that stores network
parameters to produce a first routing path to the receiving party, wherein the
network parameters include links within the network and corresponding
connection type characteristic capabilities for the links; and
establish the connection along the first routing path.

15 30. The connection processor of claim 29, wherein the memory further comprises
operating instructions that cause the processing module to:

when establishing the connection along the first routing path is unsuccessful:

compare the plurality of parameters with the table that stores network
parameters to produce a second routing path to the receiving party; and

20 establish the connection along the second routing path.

31. The connection processor of claim 29, wherein the memory further comprises
operating instructions that cause the processing module to:

when establishing the connection along the first routing path is unsuccessful:

25 compare the plurality of parameters with the table that stores network
parameters to produce at least a second routing path to the receiving party,
wherein the second routing path and any additional routing paths are produced
through further comparisons for subsequent rerouting attempts when connections
using attempted routing paths are unsuccessful.

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establish the connection along the first routing path by sending a designated transit list to each node along the first routing path.